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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|---------------------|------------------|
| 09/980,825 | 04/01/2002 | Martin Russell Harris | P07421US00/RFH | 1538 |
| 881 | 7590 | 11/04/2003 | EXAMINER | |
| LARSON & TAYLOR, PLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314 | | | KWOK, HELEN C | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2856 | |

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/980,825

Applicant(s)

HARRIS ET AL.

Examiner

Helen C. Kwok

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 9-10, 12-22 and 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,214,279 (Hakamata).

With regards to claims 1-3, Hakamata discloses a scanning microscope and tuning fork scanning mechanism comprising, as illustrated in Figures 1-11 and 17, a tuning fork 30 having a base 30a and a pair of tines (as observed) having tips (the upper top portion of the tines) remote from the base and formed of a magnetic material (i.e. steel) in which a magnetic field can be induced; an electrical coil 31S having a longitudinal axis (i.e. the lengthwise direction running along the coil) within the coil such that a portion of both tines being located within the coil (i.e. since the coil is wound around the tuning fork, the tines are within the coil) and parallel to the longitudinal axis (i.e. the tines are running along with the longitudinal axis; hence parallel) whereby at least one of the tines can be vibrated relative to the other tine by passing a uni-directional current (i.e. square wave form) through the coil and inducing mutually transverse repulsive magnetic fields in the tines. (See, column 3, lines 54-61; column 16, lines 27-39).

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With regards to claims 4-5, as observed in Figure 17, the tips of the tines protrude from the coil (the tines are not completely covered by the coil 31S) and the coil is elliptical (as disclosed in column 16, lines 31-32, the coil is wound around the tuning fork, hence the coil can either take the shape of the tuning fork or it can be wrapped around forming a spiral shape or elliptical shape around the tuning fork. Hence, the shape of this coil can be considered elliptical.).

With regards to claims 6 and 9, as observed in Figure 17, additional magnetically permeable material or a biasing permanent magnet 30F located outside of the coil or located around at least a portion of the tuning fork.

With regards to claim 10, Hakamata further discloses an optical fiber located on one of the tines, as observed in Figure 2.

With regards to claim 12, the coil 31S is a former-less coil (which is well known to an artisan in the art as commented on page 16 of the Amendment).

With regards to claims 13-16, Hakamata suggests the sensor is a fiber sensor system in a scanning microscope. (See, column 3, lines 3-42).

With regards to claim 17-22 and 25-29, the claims are directed to a method for vibrating a tuning fork and are commensurate in scope with claims 1-6, 9-10 and 12-16. Hence, these claims are rejected for the same reasons as set forth above.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-8, 11 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,214,279 (Hakamata).

With regards to claims 7-8 and 11, Hakamata does not teach one of the tines is massive than the other and that the massive tine is tapered. It is well known to a person of ordinary skill in the art at the time of invention to have readily recognize the advantages and desirability of constructing one of the tines more massive than the other tine to adjust the resonance frequency. This is usually done by adding an additional mass or trimming the mass. Furthermore, Hakamata does not explicitly test tapering the more massive tine as presently claimed. However, the reference does suggest different dimensions for the tines of the tuning fork, as shown in Figures 8-11. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to construct tapered tines such that the durability of the tuning fork can be kept good and to adjust the amplitude of vibration of the tuning fork. (See, column 7, lines 7-43; column 13, line 61 to column 14, line 24).

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With regards to claims 23-24, the claims are commensurate in scope with claims 7-8 and are rejected for the same reasons as set forth above.

Response to Amendment

5. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

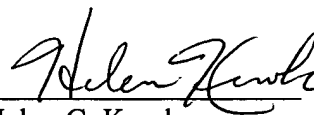
Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen Kwok whose telephone number is (703) 308-8149.


Helen C. Kwok
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hck
October 31, 2003